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SANITARY CONNECTION AND DRAIN DEVICE

The present invention relates to a sanitary connection and drain device for mounting in a basin, such as a washbasin, a bidet, or a kitchen sink.

Sanitary fittings are known from the related art which have one or two feeds to feed the water to be delivered. If two feeds are provided, one of the feeds is used to feed cold water and the other feed is used to feed hot water. Furthermore, a sanitary valve is typically provided to deliver the water, which generally has an outlet arm and a mixing device, such as a single-lever mixer, which is used to control the quantity of water and, in the case of two feeds for cold or hot water, respectively, also to control the water temperature.

For the arrangement and mounting on a basin of the sanitary fittings known from the related art, the mounting of the sanitary fittings generally occurs in an intrinsic opening in the basin which is provided solely for the mounting. In addition, the basin has further openings besides this opening provided for mounting the sanitary fittings, such as a drain opening, which may generally be blocked so that the basin may be filled with water, and an overflow opening at a predetermined distance from the bottom of the basin. The overflow opening ensures that when water is being supplied and the drain opening is blocked, no water flows over the edge of the basin, since draining occurs before this via the overflow opening. The water draining via the overflow opening generally reaches a drain pipe, via which the water flowing out through the drain opening is also carried off, via an intrinsic guide provided for this purpose.

Particularly in washbasins made of ceramic, but also in basins made of acrylic or stainless steel, the provision of the three openings cited above and the connection of the overflow to the drain represents a significant outlay in design and production. In addition, relatively complicated measures are necessary for blocking the drain if one does not wish to use a simple rubber stopper inserted into the drain opening.

Correspondingly, it is the object of the present invention to provide such a sanitary connection and drain device for mounting in a basin, due to which the basin may be constructed with a simpler design.

The object derived and indicated above is achieved by a sanitary connection and drain device which has a feed, via which water may be supplied to the sanitary connection and drain device and subsequently delivered into the basin, and a drain, integrated in the sanitary connection and drain device, for the water delivered into the basin.

According to the present invention, the drain is integrated into the sanitary connection and drain device, so that only one shared opening is necessary, in the basin on which the sanitary connection and drain device is mounted, for mounting the sanitary connection and drain device and as an outlet opening. This opening is preferably positioned at the lowest point of the basin bottom, as is also typically the case in regard to the outlet opening in order to avoid stoppage of the remaining water.

In the sanitary connection and drain device according to the present invention, it is preferably provided that the drain includes a drain opening and a drain pipe. This drain pipe is then led through the sole opening provided in the basin and may be connected to a drain pipe system. In addition, according to a preferred embodiment of the present invention, the drain opening may be blocked using a blocking device, which is integrated in the sanitary connection and drain device and movable in front of the drain opening.

A basin on which the sanitary connection and drain device according to the present invention is mounted may, in principle, have its own overflow. However, according to a preferred embodiment of the present invention, the sanitary connection and drain device has an overflow itself, so that providing an overflow in the basin may also be avoided.

The overflow of the sanitary connection and drain device according to the present invention preferably has an overflow opening and an overflow pipe leading from the overflow opening into the drain. For this purpose, the sanitary connection and drain device preferably also has a main housing and the overflow pipe is positioned inside the main housing.

In this case, the main housing itself may form the overflow pipe. However, according to a preferred embodiment of the present invention, a separate

overflow pipe is provided. By providing a separate overflow pipe, an embodiment of the present invention is possible such that the overflow pipe is rotatable along its longitudinal axis and has an opening, at a distance from the overflow opening, in its wall below the overflow opening, so that by rotating the overflow pipe around its longitudinal axis, the drain may alternately be opened or blocked by the wall of the overflow pipe. The rotatable overflow pipe therefore represents the blocking device already described above. Due to this preferred embodiment of the present invention, not only are drain and overflow integrated into the sanitary connection and drain device in an elegant way, so that they no longer have to be provided in the basin in addition to the opening for mounting the sanitary connection and drain device, but rather a possibility for blocking the drain is also simultaneously provided.

In principle, the cross-section of the sanitary connection and drain device is arbitrary. The cross-section may therefore not only be rotationally symmetric, but also triangular, square, rectangular, etc. Particularly when providing a non-rotationally symmetric cross-section of the sanitary connection and drain device and particularly of the main housing and of the overflow pipe, according to a preferred embodiment of the present invention, the overflow pipe may be movable along its longitudinal axis, so that the drain may alternately be opened or blocked by the wall of the overflow pipe through longitudinal movement of the overflow pipe. Therefore, in principle, essentially the same elegant blocking possibility is provided as with the rotatability of the overflow pipe described above.

The overflow pipe may be visible, i.e., itself form an external terminus of the sanitary connection and drain device. However, according to a preferred embodiment of the present invention, the sanitary connection and drain device includes a cover which covers at least the overflow pipe, leaves the drain free, and is positioned at a distance to the overflow pipe. In this way, a uniform, visually pleasing external housing of the sanitary connection and drain device is achieved without its functionality being lost. Since the drain remains free, the function of the drain is additionally ensured in any case by arranging the cover at a distance to the overflow pipe, the water also being able to rise in the basin between the cover and overflow pipe when the drain is blocked and being able to drain off the water via the overflow upon reaching the appropriate height.

As already described above, only one single opening is necessary in the basin for mounting the sanitary connection and drain device according to the present invention, specifically such an opening which ensures the drainage of water from the basin via the drain opening provided in the sanitary connection and drain device and possibly also via the overflow opening also provided in the sanitary connection and drain device. In this case, in principle, a feed pipe to be connected to the feed of the sanitary connection and drain device either runs visibly above the basin or is "invisibly" lead through the single opening of the basin below the basin in or next to the drain pipe of the sanitary connection and drain device. According to a preferred embodiment of the present invention, however, the basin has a pass-through opening to pass through the feed of the sanitary connection and drain device or a feed pipe to be connected to the feed of the sanitary connection and drain device. A corresponding implementation of the sanitary connection and drain device and basin is generally simpler than guiding the feed pipe to be connected to the feed of the sanitary connection and drain device in or next to the drain pipe.

In this case, the pass-through opening to pass through the feed or the feed pipe to be connected to the feed of the sanitary connection and drain device may particularly be connected directly to the receiver opening of the basin, which receives the sanitary connection and drain device and through which the drain pipe is led. Therefore, there is again only one single opening overall, its part assigned to the outlet pipe typically being provided in the basin bottom and its part assigned to the feed pipe typically being provided in a basin wall.

There are many possibilities for sealing the transitions between the sanitary connection and drain device, on the one hand, and the delimitations of the receiver opening and the pass-through opening, on the other hand. According to a preferred embodiment of the present invention, however, the transitions between the sanitary connection and drain device, on the one hand, and the delimitations of the receiver opening and the pass-through opening, on the other hand, are sealed using an elastic plastic film. In this case, a plastic film which is self-adhesive on both sides is preferably used.

There are many possibilities for implementing and refining the sanitary connection and drain device according to the present invention in detail. For this purpose, reference is made to the patent claims following patent claim 1 and to

the following detailed description of a preferred exemplary embodiment of the present invention with reference to the drawing. In the drawing,

- Fig. 1 shows the arrangement in a basin of a sanitary connection and drain device according to a preferred exemplary embodiment of the present invention having a sanitary valve attached, in perspective view,
- Fig. 2 shows the sanitary connection and drain device according to the preferred exemplary embodiment of the present invention having a sanitary valve and a cover, in front of the overflow pipe, attached, in perspective view,
- Fig. 3 shows the sanitary connection and drain device according to the preferred exemplary embodiment of the present invention having a sanitary valve attached, in the blocked state of the drain, in section,
- Fig. 4 shows the sanitary connection and drain device according to the preferred exemplary embodiment of the present invention having a sanitary valve attached, in the open state of the drain, in section, and
- Fig. 5 shows the sanitary connection and drain device according to the preferred exemplary embodiment of the present invention having an elastic plastic film for sealing the transitions between the sanitary connection and drain device, on the one hand, and the delimitations of the receiver opening and the pass-through opening, on the other hand, in an unmounted state in perspective view.

The drawing shows a sanitary connection and drain device according to a preferred exemplary embodiment of the present invention, mounted on a basin 1, having two feeds 2, namely one for cold water and one for hot water. Furthermore, a drain 3, having a drain opening 4 and a drain pipe 5 discharging into drain 3, is provided. The sanitary connection and drain device according to the preferred exemplary embodiment of the present invention also has an overflow 6, which includes an overflow opening 7 and an overflow pipe 8 leading from overflow opening 7 into drain pipe 5. Furthermore, the sanitary

connection and drain device includes a main housing 9, open at the front, within which overflow pipe 8 is arranged so it is rotatable around its longitudinal axis. Overflow opening 7 is formed in this case in that overflow pipe 8 ends before the upper end of main housing 9, which is open at the front, so that water which has risen appropriately high may flow into the upper mouth of overflow pipe 8.

In the wall of overflow pipe 8, below its upper mouth, an opening is located at a distance thereto, which forms drain opening 4 when it points forward, as illustrated in Fig. 1. By rotating overflow pipe 8 around its longitudinal axis, this opening may be moved to the rear, so that drain 3 is blocked by the wall of overflow pipe 8. The change between these two states, namely "drain blocked" and "drain open" is particularly obvious from Figs. 3 and 4. A rotating ring 10, which is rigidly connected to overflow pipe 8 and is externally accessible, is used to rotate overflow pipe 8.

Although it is not further illustrated in the drawing, a similar principle to that described above for blocking drain 3 may also be implemented if overflow pipe 8 is movable along its longitudinal axis, so that, through longitudinal movement of overflow pipe 8, drain 3 may alternatively be opened or blocked by the wall of overflow pipe 8. In this case, no opening is necessary in the lower region of overflow pipe 8; specifically, drain opening 4 is already formed when overflow pipe 8 is moved upward in that an opening is released below overflow pipe 8, so that the water in basin 1 may drain off.

A sanitary valve 11 is removably attached to the sanitary connection and drain device, sanitary valve 11 also in principle able to be implemented in one piece with the sanitary connection and drain device. Sanitary valve 11 has a single-lever mixer having mixer lever 12 for controlling the amount and temperature of the water and an outlet arm 13. In this case, the function and design of sanitary valve 11 are essentially those known from typical sanitary valves. In particular, the sanitary connection and drain device according to the preferred exemplary embodiment of the present invention may be constructed in such a way that typical sanitary valves may also be attached thereto.

As is particularly obvious from Fig. 2 and Figs. 3 and 4, the sanitary connection and drain device according to the preferred exemplary embodiment of the present invention has a cover 14, which covers main housing 9 having rotatable overflow

pipe 8. The cover leaves drain 3 free, so that water may still drain off via drain 3. In addition, cover 14 is positioned at a distance to overflow pipe 8, which leads to water also rising between cover 14 and overflow pipe 8 when drain 3 is blocked, i.e., the lower opening in the wall of overflow pipe 8 is directed toward the rear, and water draining off upon reaching overflow opening 7 via this opening, specifically through overflow pipe 8 into drain pipe 5.

As the Figures show, in the illustrated sanitary facility, the sanitary connection and drain device according to the preferred exemplary embodiment of the present invention is attached to basin 1 in that the sanitary connection and drain device, having its main housing 9, is fitted into an opening provided in basin 1. This opening is formed by both a receiver opening 17 provided in basin bottom 16 and a pass-through opening 19 provided in basin wall 18. Pass-through opening 19 is used, on one hand, to pass through feeds 2, however, it is dimensioned so large, on the other hand, that it forms a joint opening in basin 1 with receiver opening 17 and at least partially receives main housing 9 of the sanitary connection and drain device. In this way, the sanitary connection and drain device according to the preferred exemplary embodiment of the present invention is integrated into basin wall 18. In principle, it is, of course, also possible for this purpose that receiver opening 17, on the one hand, and pass-through opening 19, on the other hand, form openings separate from one another.

In order to ensure the necessary seal of the transitions between the sanitary connection and drain device, specifically main housing 9, on the one hand, and the delimitations of receiver opening 17 and pass-through opening 19, on the other hand, an elastic plastic film 20 is provided between them, which is self-adhesive on both sides and may therefore be easily attached. This is particularly obvious from Fig. 5, which shows the sanitary connection and drain device according to the preferred exemplary embodiment of the present invention, together with sanitary valve 11 and plastic film 20, in an unmounted state.